IN THE CLAIMS

57. (Amended) A composition containing a T4 surface lattice protein array and a chimera, wherein the chimera comprises a molecule of interest, a T4 dispensable polypeptide and a linker, wherein the linker links the molecule of interest to the T4 dispensable polypeptide and wherein said chimera interacts with the T4 surface lattice protein array.

REMARKS

Claims 57-67 are pending in this application. Claim 57 is amended herein for clarity and to more particularly define the invention. Support for this amendment can be found in claim 57 as originally filed, and throughout the specification where it is clear that a separate chimeric polypeptide that includes a dispensable polypeptide and a molecule of interest interacts with (e.g. binds to) a T4 surface lattice protein array. The specification makes clear the fact that the chimeric protein of the claims binds to the surface lattice protein only as one independent protein binds to another (e.g., as in antigen-antibody binding). Thus, as used in the context of claim 57, it is clear that the binding interaction between the chimera and the surface lattice protein is in the nature of protein-protein binding only, and is not in the nature of a covalent bond. For example, see page 2, lines 4-10 of the specification, page 2, lines 25-27 of the specification, page 3, lines 17-18, page 7, lines 2-4 of the specification, page 13, lines 20-23 of the specification, and page 21, lines 15-19 of the specification. It is believed that no new matter has been added by these amendments. In light of these amendments and the following remarks, applicants respectfully request reconsideration of this application and allowance of the pending claims to issue. Applicants acknowledge that the drawings in this application are objected to by the Draftsperson under 37 C.F.R. § 1.84. Therefore, applicants will provide formal drawings upon allowance of the application.

Applicants appreciate having been granted the opportunity to interview this case with Examiner Cook on July 3, 2002. Specifically, the outstanding rejection under 35 U.S.C. § 103(a) was discussed, with applicants making the point that none of the art discloses or suggests the present invention. Applicants also discussed amending claim 57 to recite "wherein said chimera interacts with the T4 surface lattice protein array." The following remarks more specifically address the issues discussed in the interview.

I. Rejection Under 35 U.S.C. § 103(a)

As discussed in the interview, the Ladner et al. reference describes a method of phage display in which a molecule of interest is displayed directly on the surface of the phage. The molecule of interest is fused with an OSP, defined as an outer surface protein, e.g. coat protein of a phage or LamB from *E.coli*, which must pass through the secretion system of the phage in order to be displayed on the surface. An outer surface protein, as defined by Ladner et al., is not a dispensable polypeptide. Therefore, the Ladner et al. reference is an example of classic phage display where the molecule of interest is displayed as part of a chimeric surface lattice protein. In other words, in Ladner et al., the molecule of interest is not linked to a dispensable polypeptide that then interacts with a surface lattice protein as in the present invention nor does Ladner et al. suggest any use for a dispensable polypeptide, much less as a polypeptide for displaying a molecule of interest on phage. Furthermore, because the display system described by Ladner et al. involves passage of the chimeric outer surface protein comprising the molecule of interest through the secretory system of the phage, there are size limitations which prevent the molecule of interest from being, for example, a large polypeptide. Since the present invention bypasses the secretory system of the phage by employing a chimera comprising a molecule of interest and a dispensable polypeptide, wherein the chimera interacts with surface lattice proteins, the size limitations associated with classic phage display, e.g. Ladner et al., are eliminated.

The present invention also allows the preparation of a chimera comprising a molecule of interest and a dispensable polypeptide which can then interact *in vitro* with

separately isolated surface lattice proteins, as described throughout the specification. Therefore, it is not necessary to produce recombinant phage for every desired molecule of interest as would be necessary utilizing the method of Ladner et al.

Applicants also pointed out to the Examiner that the MacDonald et al. reference merely discloses the genetic location of three genes on the T4 phage genetic map. One of these genes, SOC (surface outer capsid), is a dispensable polypeptide, but there is no method or motivation stated or suggested for utilizing SOC to make any composition, much less any composition of the present invention.

With regard to the Aebi et al. reference, applicants pointed out that this reference merely discloses structural studies pertaining to dispensable polypeptides, but there is no suggestion or motivation that dispensable polypeptides, soc and hoc, would be useful for linking to a molecule of interest for the purpose of displaying the molecule of interest. Therefore, prior to applicant's invention, there was no reasonable expectation that a dispensable polypeptide can be linked to a molecule of interest and still retain the ability to bind intact phage

Therefore, there is no suggestion or motivation in any of Ladner et al., MacDonald et al. or Aebi et al., alone or in combination, that would allow one of skill in the art to arrive at the present invention. Thus, applicants believe that this rejection has been overcome and respectfully request its withdrawal.

Pursuant to the above amendments and remarks, reconsideration and allowance of the pending application is believed to be warranted. The Examiner is invited and encouraged to directly contact the undersigned if such contact may enhance the efficient prosecution of this application to issue.

Payment in the amount of $1,440.00 for a four month extension of time is to be charged to a credit card and such payment is authorized by the signed, enclosed document entitled Credit Card Payment Form PTO-2038. This amount is believed to be

correct; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No.14-0629.

Respectfully submitted,

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CERTIFICATE VIA FACSIMILE TRANSMISSION

I hereby certify that this correspondence is being sent via facsimile transmission to 703/308-4242 addressed to Examiner Lisa Cook, Group Art Unit 1641, Washington, D.C. 20231, on the date shown below.

Gwendolyn D. Spratt

Gwendolyn D. Spratt

7-24-02

Date

MARKED-UP VERSION OF AMENDED CLAIM

57. (Amended) A composition containing a T4 surface lattice protein array and a chimera, wherein the chimera comprises a molecule of interest, a T4 dispensable polypeptide and a linker, wherein the linker links the molecule of interest to the T4 dispensable polypeptide and wherein said chimera [is bound to] interacts with the T4 surface lattice protein array.